



Traffic Advisory Committee

Policy Guidelines: Traffic Impact Analysis For Private Development Review

Concept Adopted by the Traffic Advisory Committee: December 12, 2002
Revisions Adopted by the TAC: May 12, 2005

REQUIREMENT CHECKLIST

Frequently Asked Question	Reference Pages	Y N	Type of Traffic Analysis Required
---------------------------	-----------------	--------	-----------------------------------

ALL DEVELOPMENT PROJECTS MUST ANSWER ALL QUESTIONS.

A. Peak-Hour Traffic Analysis: Each development project falls under one of the following 'A' categories.

A-1). Does the proposed project include less than the number of threshold units in Exhibit 1: Thresholds for Determining Requirements for City of Napa "Traffic Impact Study"?	3-4, 14-15		If Yes, no "Traffic Impact Study" is required. However, all site plans are subject to "Traffic Safety & Operations Review" by City staff or on-call consultant (see Section III).
A-2). Does the proposed project equal or exceed the number of threshold units in Exhibit 1: Thresholds for Determining Requirements for "Traffic Impact Study"?	3-4 14-15		If Yes, conduct a "Traffic Impact Study" (see Section IV) and perform a "Traffic Safety & Operations Review" (see Section III).
A-3). Is the proposed project anticipated to have a significant effect on the environment and may require an environmental impact report (EIR)?	14-15		If Yes, conduct "Transportation Analysis for EIRs" (see Section IV and Section V) and perform a "Traffic Safety & Operations Review" (see Section III).
A-4). Is the proposed project <u>not easily categorized</u> into one of the above categories?	N/A		If Yes, contact CDD Development Engineering Division for technical assistance (see p. 2).

B. Crucial Corridor Analysis

Is the proposed project located on a <u>City Crucial Corridor</u> or <u>TI Overlay District</u> ?	13-14, 35		If Yes, conduct a "Trip Generation Analysis" (see Section II).
---	-----------	--	--

<i>Frequently Asked Question</i>	<i>Reference Pages</i>	<i>Y N</i>	<i>Type of Traffic Analysis Required</i>
----------------------------------	------------------------	----------------	--

ALL DEVELOPMENT PROJECTS MUST ANSWER ALL QUESTIONS.

C. State Highway Traffic Analysis

<p>C-1). Does the proposed project have (or plan to have) direct access to the State Highway and/or need an <u>encroachment permit from Caltrans</u> to perform work that encroaches on the State right-of-way (ROW)?</p>	<p>39</p>		<p>If Yes, Caltrans will require a “traffic study” or “focused traffic analysis” prepared in accordance with the <i>Caltrans Guide for the Preparation of Traffic Impact Studies</i> (available at: http://www.dot.ca.gov/hq/traffops/developserv/operationalsystems/reports/tisguide.pdf).</p> <p>Caltrans requires environmental documentation as part of a completed encroachment permit application. Early consultation with Caltrans on the encroachment permit requirements is recommended.</p>
<p>C-2). Does the proposed project meet the criteria set in the <i>CEQA Guidelines Section 15206</i> to be deemed a <u>project of statewide, regional or areawide significance</u> (see <i>Exhibit 2: “Projects of Statewide, Regional, or Areawide Significance”</i>)?</p>	<p>5-6</p>		<p>If Yes, Caltrans should be consulted regarding the “traffic study” requirements that would address potential impacts on the State Highway in the project area.</p> <p>Project applicants should refer to the <i>Caltrans Guide for the Preparation of Traffic Impact Studies</i> (available at: http://www.dot.ca.gov/hq/traffops/developserv/operationalsystems/reports/tisguide.pdf).</p>

Technical Assistance Contact Information

Please contact the CDD Development Engineering Division as follows:

At the Community Services Building counter:

Ernie Cabral, Associate Civil Engineer, 707-257-9530 x7386

By consultation appointment:

Jacqueline Solomon, Development Engineering Manager, 707-257-9530 x7634

Exhibit 1: Thresholds for Determining Requirements for City of Napa “Traffic Impact Study”

The City of Napa does **not** require a full “Traffic Impact Study” for development projects with units less than the threshold units in each land use category below—which reflect 50 peak-hour vehicle-trips for residential uses and 100 peak-hour vehicle-trips for non-residential uses. However, all project site plans are subject to a “Transportation Safety & Operations Review” and some projects are subject to the “Crucial Corridor” requirements of the City’s General Plan.

Please note that Caltrans will require additional “traffic study” or “focused traffic analysis” for development projects needing an encroachment permit from Caltrans to perform work that encroaches on the State right-of-way (ROW). Early consultation with Caltrans on the needed encroachment permit is highly recommended.

General Category	Building Type	ITE Code	Threshold Units*	Unit Type
Industrial	Truck Terminal	30	13.74	acres
Industrial	Light Industrial	110	102,000	square feet
Industrial	Heavy Industrial	120	147,000	square feet
Industrial	Industrial Park	130	108,600	square feet
Industrial	Manufacturing	140	135,200	square feet
Industrial	Warehousing	150	196,000	square feet
Residential	Single Family Detached	210	50	dwelling unit
Residential	Apartments	220	81	dwelling unit
Residential	Condominium/Townhouse	230	93	dwelling unit
Residential	Mobile Home Park	240	89	dwelling unit
Residential	Senior Housing Detached	251	217	dwelling unit
Residential	Senior Housing/Community	250/253	263	dwelling unit
Lodging	Hotel	310	164	rooms
Lodging	Motel	320	213	rooms
Lodging	Resort Hotel	330	238	rooms
Institutional/Educational	Elementary School	520	345	students
Institutional/Educational	Middle School/Junior High	522	217	students
Institutional/Educational	High School	530	217	students
Institutional/Educational	Church	560	138,800	square feet
Institutional/Educational	Day Care Center	565	116	student
Institutional/Educational	Library	590	14,200	square feet
Medical	Hospital	610	82	beds
Medical	Nursing Home	620	500	beds
Medical	Medical/Dental Office	720	27,400	square feet
Office	General Office	710	64,200	square feet
Office	Corporate Headquarters	714	68,000	square feet
Office	Single Tenant Office	715	56,200	square feet

Policy Guidelines:
Traffic Impact Analysis
For Private Development Review

General Category	Building Type	ITE Code	Threshold Units*	Unit Type
Office	Post Office	732	9,200	square feet
Office	Office Park	750	57,400	square feet
Office	Research & Development Ctr	760	80,600	square feet
Office	Business Park	770	70,000	square feet
Restaurant	Quality Restaurant	831	13,400	square feet
Restaurant	High Turnover Restaurant	832	9,200	square feet
Restaurant	Fast Food without Drive-thru	833	2,200	square feet
Restaurant	Fast Food with Drive-thru	834	2,000	square feet
Restaurant	Drinking Place	836	8,600	square feet
Retail	Building Materials and Lumber	812	24,800	square feet
Retail	Discount Superstore	813	26,200	square feet
Retail	Specialty Retail Center	814	38,600	square feet
Retail	Discount Store	815	23,600	square feet
Retail	Hardware/Paint Store	816	22,600	square feet
Retail	Nursery (Garden Center)	817	26,400	square feet
Retail	Nursery (Wholesale)	818	19,400	square feet
Retail	Shopping Center	820	26,800	square feet
Retail	Factory Outlet Center	823	43,600	square feet
Retail	Quick Lub Vehicle Shop	837	19	service positions
Retail	Automobile Care Center	840	29,600	square feet
Retail	New Car Sales	841	35,800	square feet
Retail	Auto Parts Sales	843	16,800	square feet
Retail	Gasoline/Service Station	844	7	fueling positions
Retail	Gasoline with Conv. Market	845	7	fueling positions
Retail	Gas with Conv Mkt & Carwash	846	8	fueling positions
Retail	Self-Service Carwash	847	17	wash stalls
Retail	Tire Store	848	24,200	square feet
Retail	Wholesale Tire Store	849	47,400	square feet
Retail	Super Market	850	8,600	square feet
Retail	Convenience Market (24 hr)	851	1,600	square feet
Retail	Convenience Market (15-16 hr)	852	2,800	square feet
Retail	Convenience Market with Gas	853	1,600	square feet
Retail	Discount Club	861	26,400	square feet
Retail	Home Improvement Superstore	862	34,800	square feet
Retail	Electronics Superstore	863	22,200	square feet
Retail	Furniture Store	890	222,200	square feet
Retail	Video Rental Store	896	7,400	square feet
Banking Services	Walk-In Bank	911	2,400	square feet
Banking Services	Drive-In Bank	912	1,800	square feet

Reference: Trip Generation, 6th Ed., Institute of Transportation Engineers, Washington, D.C., 1997

Exhibit 2: “Projects of Statewide, Regional, or Areawide Significance”

Title 14. California Code of Regulations

Chapter 3. Guidelines for Implementation of the California Environmental Quality Act

Article 13. Review and Evaluation of EIRs and Negative Declarations

15206. Projects of Statewide, Regional, or Areawide Significance

- (a) Projects meeting the criteria in this section shall be deemed to be of statewide, regional, or areawide significance.
- (1) A draft EIR or negative declaration prepared by any public agency on a project described in this section shall be submitted to the State Clearinghouse and should be submitted also to the appropriate metropolitan area council of governments for review and comment. The notice of completion form required by the State Clearinghouse must be submitted together with the copies of the EIR and may be submitted together with the copies of the negative declaration. The notice of completion form required by the State Clearinghouse is included in Appendix C [of *Title 14. Chapter 3. Guidelines for Implementation of the California Environmental Quality Act*]. If the lead agency uses the on-line process for submittal of the notice of completion form to the State Clearinghouse, the form generated from the Internet shall satisfy this requirement (refer to www.ceqanet.ca.gov).
- (2) When such documents are submitted to the State Clearinghouse, the public agency shall include, in addition to the printed copy, a copy of the document in electronic format on a diskette or by electronic mail transmission, if available.
- (b) The Lead Agency shall determine that a proposed project is of statewide, regional, or areawide significance if the project meets any of the following criteria:
- (1) A proposed local general plan, element, or amendment thereof for which an EIR was prepared. If a Negative Declaration was prepared for the plan, element, or amendment, the document need not be submitted for review.
- (2) A project has the potential for causing significant effects on the environment extending beyond the city or county in which the project would be located. Examples of the effects include generating significant amounts of traffic or interfering with the attainment or maintenance of state or national air quality standards. Projects subject to this subsection include:
- (A) A proposed residential development of more than 500 dwelling units.
- (B) A proposed shopping center or business establishment employing more than 1,000 persons or encompassing more than 500,000 square feet of floor space.
- (C) A proposed commercial office building employing more than 1,000 persons or encompassing more than 250,000 square feet of floor space.

- (D) A proposed hotel/motel development of more than 500 rooms.
- (E) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or encompassing more than 650,000 square feet of floor area.
- (3) A project which would result in the cancellation of an open space contract made pursuant to the California Land Conservation Act of 1965 (Williamson Act) for any parcel of 100 or more acres.
- (4) A project for which an EIR and not a Negative Declaration was prepared which would be located in and would substantially impact the following areas of critical environmental sensitivity:
 - (A) The Lake Tahoe Basin.
 - (B) The Santa Monica Mountains Zone as defined by Section 33105 of the Public Resources Code.
 - (C) The California Coastal Zone as defined in, and mapped pursuant to, Section 30103 of the Public Resources Code.
 - (D) An area within 1/4 mile of a wild and scenic river as defined by Section 5093.5 of the Public Resources Code.
 - (E) The Sacramento-San Joaquin Delta, as defined in Water Code Section 12220.
 - (F) The Suisun Marsh as defined in Public Resources Code Section 29101.
 - (G) The jurisdiction of the San Francisco Bay Conservation and Development Commission as defined in Government Code Section 66610.
- (5) A project which would substantially affect sensitive wildlife habitats including but not limited to riparian lands, wetlands, bays, estuaries, marshes, and habitats for endangered, rare and threatened species as defined by Section 15380 of this Chapter.
- (6) A project which would interfere with attainment of regional water quality standards as stated in the approved areawide waste treatment management plan.
- (7) A project which would provide housing, jobs, or occupancy for 500 or more people within 10 miles of a nuclear power plant.

Authority Cited: Sections 21083 and 21087, Public Resources Code. Reference: Section 21083, Public Resources Code.



Traffic Advisory Committee

Table of Contents

Section	Page
Requirement Checklist	1
Technical Assistance Contact Information	2
Exhibit 1: Thresholds for Determining Requirements for “Traffic Impact Study”	3
Exhibit 2: “Projects of Statewide, Regional, or Areawide Significance”	5
I. Overview	9
II. “Trip Generation Analysis”	10
A. Fundamental Requirements	11
B. Types of Trip-Making	11
1. Pass-By Trips	12
2. Non-Pass-By Trips	12
C. General Plan Policy on Crucial Corridors: Daily Trips	13
D. Implementation Program for Crucial Corridors	14
E. Peak-Hour Trips: Thresholds for Traffic Analysis	14
III. “Traffic Safety & Operations Review”	16
A. Site-Specific Safety & Operations Review	16
B. TDM Options to Meet Parking Requirements	17
Exhibit 3: Applicable TDM Strategies for Napa County	18
IV. “Traffic Impact Study”	19
A. Overall Review Process	19
B. General Methodology	20
C. Level-of-Service Criteria from General Plan	22
D. Guidelines for Determination of Significant Impacts	24
E. Mitigation Measures	25
F. Project Fair Share	27
G. Study Report Contents	27
H. General Plan 2020 Cumulative Buildout Scenario	29
V. “Transportation Analysis for EIRs”	31
A. Overall Review Process	31
B. General Methodology	32
C. Level-of-Service Criteria from General Plan	32
D. Guidelines for Determination of Significant Impacts	32
E. Mitigation Measures	33
F. Project Fair Share	33
G. Technical Memo Contents	34
H. General Plan 2020 Cumulative Buildout Scenario	34

List of Exhibits

Section	Page
Exhibit A: Crucial Corridors	35
Exhibit B: Illustrative Example: Trip Generation Analysis	36
Exhibit C: Count Adjustment Factors	37
Exhibit D: Local Areas with Permitted LOS 'E'	38
Exhibit E: State Highway Facilities with Permitted LOS 'E'	39
Exhibit F: State Highway Intersections with LOS 'E' & 'F'	40
Exhibit G: Operational Analysis – Unsignalized Intersections	41
Exhibit H: Transportation Consultants	42



Traffic Advisory Committee

Policy Guidelines: Overview

I. Overview

The purpose of these policy guidelines is to provide a general guide to applicants and their development teams in assessing the potential traffic impacts of new developments proposed within the City of Napa, including those which may result from related changes in zoning and General Plan amendments. Based on the current state-of-the-practice in transportation planning and development engineering, the following guidelines have been developed to provide a clear, orderly, and consistent technical approach to traffic impact analysis by establishing minimum standards for all traffic impact studies and reports. The Transportation Engineering Division (TED) shall review traffic studies and reports based on the guidelines presented herewith. [Traffic studies and reports prepared in compliance with these guidelines will be deemed adequate for California Environmental Quality Act \(CEQA\) purposes. Alternatively, traffic reports and studies not in compliance with these guidelines may be deemed deficient.](#) TED shall also use these guidelines to guide the traffic review of publicly funded projects within the City of Napa sphere of influence.

A traffic impact study (TIS) is an important tool for determining the impacts of a proposed private land development project and identifying the need for any improvements to the transportation system to reduce congestion, maintain and improve safety, and provide site access and impact mitigation associated with the proposed project. Traffic impact studies provide the City of Napa, other public agencies, developers, communities and neighborhoods, interested stakeholders, and the general public a framework in making critical land use and site planning decisions regarding traffic and transportation issues. ¹

For the purposes of traffic impact analysis of proposed development projects, all land at one location—including existing development or available land for building development under common ownership or control by an applicant—shall be considered when determining if required criteria are met. An applicant and/or consultant shall not avoid the intent of the threshold criteria in these guidelines by submitting “piecemeal” applications or approval requests for building permits, development plans, subdivisions, etc. The phrase “at one location” means all adjacent land of the applicant, the property lines of which are contiguous or nearly contiguous at any point, or separated by other land of the applicant, or a public or private street, road, highway, or utility right-of-way or other public or private right-of-way.

The applicant shall provide a project description that includes specific land uses intended for the site and the size of the proposed development (e.g. square footage, acreage, dwelling units, etc.) The project description shall be used as the basis for all traffic impact analysis. In the case of “shell” buildings with unidentified use or where the ultimate tenant use of the building cannot be enforceably restricted, the Community Development Department (CDD) shall recommend the use of the highest traffic intensity among all permitted uses to establish traffic impacts and to calculate Development Impact Fees.

¹ *Transportation Impact Studies, Advancing the Land Development Process* (Brochure), Institute of Transportation Engineers



Traffic Advisory Committee

Policy Guidelines: "Trip Generation Analysis"

II. "Trip Generation Analysis"

As the first step in the traffic analysis of a proposed development project, the applicant shall submit a trip generation analysis that identifies the potentially new or added vehicle-trips from the proposed project for the following scenarios:

- Daily Trip Generation Analysis: required for development projects that are on the City's Crucial Corridors and for the calculation of the estimated Street Improvement Fees for all projects
- Peak Hour Trip Generation Analysis: required to establish the potential impact of a development project on the capacity constraints of the roadway network

The project applicant shall retain a professional traffic engineer, who is licensed to practice in the State of California, to conduct the trip generation analysis. The traffic consultant shall conduct the work to be in compliance with the guidelines in this section. The trip generation estimation for all new or proposed development projects shall include the summation of primary trips and diverted linked trips, or simply all trips generated by a project site that are not pass-by trips.²

The estimation of new trips generated by proposed development projects during critical peak hours may include credit for trips associated with existing, current, or historical uses on the site. The final estimate of new peak-hour trips associated with a proposed development project should represent the net contribution of the proposed project, i.e., 'proposed minus existing' land use.

For the analysis of development projects on Crucial Corridors, however, the calculation of trip generation for a proposed new use, an expanded use, or a proposed increased intensity of use shall include the total traffic generated by the proposed use as well as the existing uses on the project site and shall include pass-by trips.

² *Trip Generation Handbook, An ITE Recommended Practice*, Institute of Transportation Engineers, Washington, DC, March 2001.

A. Fundamental Requirements

Trip generation analysis should primarily be based on the Institute of Transportation Engineers (ITE) *Trip Generation*.³ If multiple sources exist, the study should provide a comparison and use the most conservative trip rate estimate.

1. The project trip generation rate cannot be based solely on one nearby or similar land use facility. The sample used for non-standard trip generation rates should include several similar facilities in the City of Napa, Napa County, or neighboring counties with similar characteristics.
2. If the study involves comparable sites located in other communities, the applicant must demonstrate to the satisfaction of the Public Works Director that the sites and uses to be studied are reasonably equivalent to the site and use proposed in Napa.
3. The final trip generation rates used for the project should be an appropriate weighted average of the various trip generation rates available. A tabular summary of the final trip generation rate calculation shall be provided.

B. Types of Trip-Making

The ITE has developed a recommended practice to establish a basis for consistency in traffic impact studies, with the primary purpose of providing reliable guidance for site access, on-site circulation, and off-site improvement planning in accommodating site and other traffic safely and efficiently.⁴ The sections that follow have been extracted from the industry-standard reference *Trip Generation Handbook, An ITE Recommended Practice*.⁵

The trip generation rates and equations contained in ITE's *Trip Generation*⁶ represent vehicles entering and exiting a site at its driveways. These volumes are appropriate for determining the total traffic to be accommodated by the project site's driveways. There are land use types, however, for which the total number of trips generated by the site is different from the amount of new traffic added to the street system by the proposed project. Certain land uses, e.g. retail, restaurants, banks, among others, attract motorists already on the street. These sites attract a portion of their trips from traffic passing the site on the way from an origin to an ultimate destination. Hence, the impacts of a proposed project on an adjacent street may be less than the full trip estimates using ITE trip generation rates.

³ *Trip Generation*, 6th Ed., Institute of Transportation Engineers, Washington, D.C., 1997

⁴ *Transportation Impact Studies, Advancing the Land Development Process* (Brochure), Institute of Transportation Engineers

⁵ *Trip Generation Handbook, An ITE Recommended Practice*, Institute of Transportation Engineers, Washington, DC, March 2001.

⁶ *Trip Generation*, 6th Edition, Institute of Transportation Engineers, Washington, DC, 1997.

Trip-making can be broken down into two major categories: pass-by trips and non-pass-by- trips. In some traffic impact study applications, the subdivision of non-pass-by trips might be appropriate and could be broken into primary trips and diverted linked trips.

1. **Pass-By Trips:** trips that are made as intermediate stops on the way from an origin to a primary trip destination without a route diversion. They are attracted from passing the site on an adjacent street or roadway that offers direct access to the project site. Pass-by trips are not diverted from another roadway. These trips are closely linked to the size of the development and to the volumes of traffic on the adjacent street that can deliver the pass-by trip.
 - a. Driveway Improvements. Pass-by trips are drawn from the passing stream, but are always included in the site driveway movements. Summation of driveway volumes must equal the total external site trip generation (i.e., the sum of primary, pass-by, and diverted linked trips).
 - b. Adjacent Volumes. Pass-by trips are not included in (and thus, subtracted from) the through-volumes passing a given site access point on an adjacent road. The *Trip Generation Handbook, An ITE Recommended Practice* provides recommended guidelines and data sets useful in selecting a pass-by percentage to appropriately reduce estimated traffic volumes. [Pass-by rates used in any traffic analysis shall be subject to the review and approval by the Public Works Director.](#)
 - c. Multi-Use Development. Before applying the pass-by reduction for multi-use development, the internal trips should be removed from the total number of trips generated by the multi-use site. Pass-by trips are only applicable to trips that enter or exit the site, not internal trips.
2. **Non-Pass-By Trips:** simply all trips generated by a project site that are not pass-by trips. The trip generation estimation for all new or proposed development projects must include the summation of primary trips and diverted linked trips.
 - a. Primary Trips: trips made for the specific purpose of visiting the generator. The stop at the generator is the primary reason for the trip. The trip typically goes from origin to generator and then returns to the origin, e.g., home-to-shopping-to-home combination of trips.
 - b. Diverted Linked Trips: trips that are attracted from the traffic volume on roadways within the vicinity of the generator but that require a diversion from that roadway to another roadway to gain access to the site.
 - i). Diverted linked trips add traffic to streets adjacent to a project site, but may not add traffic to the area's major travel routes, such nearby major highways or freeways.

- ii). Because diverted linked trips are often difficult to identify, these trips should be treated similarly to primary trips, unless: (1) all three (primary, pass-by, and diverted linked) categories are being analyzed and processed separately, and (2) the travel routes for diverted link trips can be clearly established.
- iii). Standard methodologies for assessing traffic impacts of site development typically require that diverted linked trips be included as additional trips within the confines of local impact assessment studies.
- iv) Diverted linked trips represent a change in local area travel patterns but constitute no new increase on a macroscopic scale. Within the immediate study area, however, diverted linked trips do represent additional traffic on individual streets and should be analyzed that way.

C. General Plan Policy on Crucial Corridors: Daily Trips

According to the City's General Plan Policy Document ⁷, one of the City's key circulation policies in its traffic management strategy has been to reserve traffic capacity within major corridors for community-wide circulation. These facilities are known as "crucial corridors" and City policy has limited development with direct access to these streets to low-traffic-generating uses. Uses along crucial corridors shall generally generate less than 520 trips/day/acre.

To maintain acceptable traffic flow along Napa's crucial corridors, the City shall require development within crucial corridors to adhere to the special guidelines set out in Section T-3.1 through T-3.12 and T.3.A of the City's General Plan Policy Document. The crucial corridor arterials are (see *Exhibit A: Crucial Corridors*):

1. West Imola Avenue (SR-121): Lernhart Street to Soscol Avenue
2. Trancas Street: State Route 29 to Soscol Avenue
3. Lincoln Avenue: Jefferson Street to Silverado Trail
4. Jefferson Street: Trancas Street to Imola Avenue
5. Soscol Avenue: West Imola Avenue to Trancas Street
6. Silverado Trail: Soscol Avenue to Trancas Street

⁷ *Envision Napa 2020*, City of Napa General Plan Policy Document, Adopted December 1, 1998, Reprinted with Amendments to January 1, 2002

D. Implementation Program for Crucial Corridors

As implementation of the City's policy for crucial corridors, the City shall continue to apply the Traffic Impact Overlay to properties on designated crucial corridors (see *Exhibit B: Illustrative Example—Trip Generation Analysis*).

The City's Zoning Ordinance section on the Traffic Impact Overlay District include the following provisions that are relevant to proposed development projects that are on designated crucial corridors:

1. High traffic uses are defined as those that generate more than 520 traffic trips/gross acre/day. For Crucial Corridor policy implementation, the calculation of trip generation for a proposed new use, an expanded use, or a proposed increased intensity of use shall include the total traffic generated by the proposed use as well as the existing uses on the project site and shall include pass-by trips.
2. Uses which generate more than 520 trips/gross acre/day (or gross floor area equivalent) are prohibited on properties zoned :TI unless adjustments in the equivalent gross floor area, gross acreage, operation, etc., are made to reduce the number of trips to an acceptable level as determined by the Public Works Director.
3. Nonconforming uses may continue unaffected by these regulations (i.e. high traffic uses prohibited) provided the number of daily trips does not increase.
4. Uses that are new, modified, expanded or increased in intensity and which generate more than 520 trips/acre/day may be permitted if the Public Works Director finds that the transportation benefits of the project will clearly outweigh the adverse effect of the project on the crucial corridor. Transportation benefits of the project may include roadway and safety improvements, traffic system management strategies, transit service enhancements, travel demand management strategies, among others.

E. Peak-Hour Trips: Thresholds for Traffic Analysis

Many local jurisdictions and congestion management agencies in California abide by the current practice in traffic impact analysis to require a traffic access/impact study be conducted whenever a proposed development will generate 100 or more added or new peak direction trips to or from the site during the adjacent roadways' peak hours or the development site's peak hour. This site trip generation threshold is appropriate for the following reasons:⁸

- 100 vehicles per hour are of a magnitude that can change the level of service of an intersection approach

⁸ *Traffic Access and Impact Studies for Site Development, A Recommended Practice*, Transportation Planners Council, Institute of Transportation Engineers, Washington, D.C., 1991

- Left- or right- turn lanes or other safety enhancements may be needed to satisfactorily accommodate site traffic without adversely impacting through (non-site) traffic

The City of Napa has established criteria for traffic impact analysis that reflect the community's value for smart growth and responsible development by using a more conservative and lower threshold of 50 peak-hour trips for residential uses (see *Exhibit 1 – Thresholds for Determining Requirements for City of Napa "Traffic Impact Study"*). Cities in California that utilize the same 50 peak-hour trip-threshold include Concord, Danville, Lafayette, Moraga, and Orinda, just to name a few cited in a recent informal survey. For non-residential uses, the City of Napa applies the 100 peak-hour trips threshold for requiring traffic impact studies.

As a preliminary guide and prior to engaging a consulting traffic engineer, applicants may refer to *Exhibit 1: Thresholds for Determining Requirements for "Traffic Impact Study"* to help determine the nature and scope of the traffic analysis needed for specific projects based on the critical peak-hour trip generation, as summarized below:

1. If the net new project trip generation in the critical peak hour is estimated to be less than 50 vehicle-trips for residential uses or 100 vehicle-trips for non-residential uses, no "Traffic Impact Study" is required for the proposed project. The proposed project must have less than the number of threshold units in *Exhibit 1: Thresholds for Determining Requirements for "Traffic Impact Study."* However, a "Traffic Safety & Operations Review" will be required and performed by TED staff/on-call consultant for the proposed project according to the guidelines in Section III.
2. If the net new project trip generation in the critical peak hour is estimated to be 50 or more vehicle-trips for residential uses or 100 or more vehicle-trips for non-residential uses or the project equals or exceeds the number of threshold units in *Exhibit 1: Thresholds for Determining Requirements for "Traffic Impact Study,"* a "Traffic Impact Study" and "Traffic Safety & Operations Review" are both required for the proposed project according to the guidelines in Section III and IV.
3. If the proposed project is anticipated to have a significant effect on the environment and may require an environmental impact report (EIR), the transportation analysis study for such a project shall be conducted according to the guidelines in Sections IV and V. "Traffic Safety & Operations Review" will also be required for the proposed project according to the guidelines in Section III.



Traffic Advisory Committee

Policy Guidelines: "Traffic Safety & Operations Review"

III. "Traffic Safety & Operations Review"

For all proposed development projects regardless of peak-hour trip generation, TED staff and/or our on-call consultant shall review the project site plan (i.e. the Parking, Traffic Safety, Access and Circulation (PTSAC) Plan) in terms of access to the public road system, internal circulation, safety of all road users (e.g. motorists, bicyclists, pedestrians, transit riders), traffic control, signing and striping, roadway standards, parking dimensions and layout, emergency vehicle access, and other traffic features relevant to the site.

If the net new project trip generation in the critical peak hour is estimated to be less than 50 vehicle-trips and the preliminary traffic site review performed by TED staff and/or on-call consultant reveals critical traffic safety and/or operations issues, a "Traffic Safety & Operations Review" may be required for the proposed project according to the guidelines in this section to determine the project's compliance with CEQA regulations and standard professional engineering practice.

For projects that fall below the threshold units for "Traffic Impact Study," TED staff/on-call consultant shall conduct the "Traffic Safety & Operations Review" to determine the project's compliance with CEQA regulations. For all other projects, the developer shall retain a traffic engineer to conduct the "Traffic Safety & Operations Review" in conjunction with the "Traffic Impact Study" or the "Transportation Analysis for EIRs" for the project.

A. Site-Specific Safety & Operations Review

Depending on the specific nature of the proposed project and its location, the focused traffic review may include qualitative and/or quantitative analysis of one or more of the following traffic safety and operational concerns:^{9 10 11}

- Existence of any current traffic problems in the local area—such as a high-accident location (include collision diagram/accident rate analysis), confusing intersection, an intersection in need of a traffic signal, or pre-existing traffic congestion
- Sensitivity of the adjacent neighborhoods or other areas that may be perceived as impacted
- Close proximity of proposed site driveway(s) to other driveways or intersections

⁹ *Traffic Access and Impact Studies for Site Development, A Recommended Practice*, Transportation Planners Council, Institute of Transportation Engineers, Washington, D.C., 1991

¹⁰ *Interim Transportation Impact Analysis Guidelines for Environmental Review*, The Planning group, City and County of San Francisco, January, 2000

¹¹ *Environmental Checklist Form*, California Environmental Quality Act

- Left-turn channelization needs or designs and driveway spacing
- Visibility triangle at corners and sight distance requirements for safe access
- Potential for the project to adversely impact transit operations
- Potential for the project to adversely affect pedestrian safety or the adequacy of nearby pedestrian facilities
- Potential for the project to adversely affect bicyclist safety or the adequacy of nearby bicyclist facilities
- Adequacy of the project site design to fully satisfy truck loading demand on-site, when the anticipated number of deliveries and service calls may exceed ten truck trips daily
- Substantial increase in potential hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)
- Project site design resulting in inadequate emergency access
- Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks)
- Response to comments from external public agencies, e.g. Caltrans, Napa County, NCTPA, neighboring cities, among others.

B. TDM Options to Meet Parking Requirements

When a proposed development project cannot meet parking requirements set by the Napa Municipal Code, the project may be required to implement transportation demand management (TDM) measures. TDM options found in the previous Napa County Congestion Management Agency (CMA) congestion management plan have been summarized below:¹²

The intent of the TDM Strategy Element is to manage traffic congestion through the integration of TDM strategies in coordination with transit and traffic improvements. The travel demand strategies recommended for adoption by the local jurisdictions are consistent with the region transportation control measures (TCM) plan. The TDM strategies that can be incorporated into individual development project mitigation programs are shown in the table below:

¹² 1995 Napa Congestion Management Plan, Napa County Congestion Management Agency, November 1995

Exhibit 3: Applicable TDM Strategies for Napa County

<i>TDMs</i>	<i>Potential Implementation Measures in Napa County</i>	<i>Priority Ranking</i>	<i>Potential Effects</i>
1. Expand Employer Assistance program	Provide expanded assistance to improve commute alternatives, provide financial incentives, and on-site support services	High	Vehicle trip reductions with mode shifts to transit and ridesharing
2. Adopt Employer-based Trip Reduction Rule	Require the following trip reduction strategies: <ul style="list-style-type: none"> • Appoint a transportation manager • Distribute relevant commute alternative information; and • Conduct annual employee transportation surveys 	High	Vehicle trip reductions with mode shifts to transit and ridesharing
4. Transit Use Incentives	Enhance transit market demand by expanding the marketing and distribution of transit passes and tickets	High	Vehicle trip reductions with mode shifts to transit
5. Provide carpool/vanpool incentives	Provide incentives for carpool and vanpool commuting, such as financial subsidies and preferential parking spaces at large activity centers	High	Vehicle trip reductions with mode shifts to ridesharing
6. Indirect Source Control Program	Promote transit services, shuttle services and parking management strategies to shopping centers and major activity centers	High	Non-work vehicle trip reductions
7. Conduct Public Education	Educate the public with informal gatherings concerning the alternative modes to single occupant vehicle driving	High	Vehicle trip reductions with mode shifts to transit and ridesharing
11. Improve Bicycle Access/ Facilities	Implement bicycle commute education programs	Moderate	Vehicle trip reductions with mode shifts to bicycles
12. Youth/Student Transportation	Promote discount transit tickets for youths, and provide carpool and vanpool incentives for youths with vehicles	Moderate	Vehicle trip reductions in commute peak hours
16. Ozone Excess Voluntary “No Drive Days”	Promote the voluntary use of alternative modes, such as transit, bicycles, and carpooling, during weekdays when the ozone standard is predicted to be exceeded	Low	Vehicle reductions in commute peak hours



Traffic Advisory Committee

Policy Guidelines: "Traffic Impact Study"

IV. "Traffic Impact Study"

If the net new project trip generation in the critical peak hour is estimated to be more than 50 vehicle-trips, a Traffic Impact Study is required for the proposed project according to the guidelines in this section.

A. Overall Review Process

1. The project applicant shall retain a professional traffic engineer, who is licensed to practice in the State of California, to conduct the traffic impact analysis. The traffic consultant shall conduct the work in the following phased manner:
 - a. Traffic Study Scope of Work (detailing project description, site location, study intersections, peak hours for analysis, and traffic data collection)
 - b. Project Trip Generation and Trip Distribution (documenting all key technical assumptions, data sources, and references)
 - c. Draft Traffic Study Report (prepared according to the Scope of Work, Project Trip Generation, and Trip Distribution approved by TED)
 - d. Final Traffic Study Report (addressing TED's comments on the Draft Report)
 - e. Response to Public Agency Comments (e.g. Caltrans, Napa County, NCTPA, neighboring cities, among others)
2. TED shall review the deliverable from each of the above phases of the Traffic Impact Study. Approval of the deliverable at each phase of the study is necessary prior to continuing to a later phase.
3. When a proposed development project involves a future Caltrans encroachment permit (for any and all improvement work within Caltrans ROW), developers are advised that the traffic analysis for such a project may need to include additional detailed traffic operational analysis requirements from Caltrans that will be necessary for future encroachment permits.

B. General Methodology

1. The traffic study shall identify and analyze all the impacts to the operational conditions of the transportation facilities in the project area in accordance with the current Highway Capacity Manual (HCM).¹³ The operational methodology of the current HCM shall be used for signalized intersections. Signal timing information for City signals shall be provided by TED. Signal timing information for Caltrans-maintained signals shall be obtained from Caltrans.
2. Traffic impacts should be analyzed in terms of standard or state-of-the-practice professional procedures for trip generation, trip distribution, and traffic assignment, as recommended by the Institute of Transportation Engineers (ITE)^{14 15} or as approved by the Public Works Director.
3. The study should accurately analyze the impact of specific proposed developments, the adequacy of site access, and the suitability of on-site circulation and parking. To accurately gauge impacts, needs and opportunities for improvements, the study should provide the following information, as appropriate to the specific development site:¹⁶
 - Characteristics of the existing roadway and public transit systems
 - Characteristics of the proposed developments
 - Project access plans and site plan
 - Future approved development traffic
 - Projections of traffic volumes on individual roadway segments
 - Projections of turn movements at individual intersections and access drives
 - Road system adequacy and needs
 - Effect of numerous access points along an arterial as opposed to only a few consolidated access points
 - Effects of modest changes in land uses on the location of individual land uses
 - Pedestrian, bicyclist, and transit access requirements
4. The study shall include the traffic operational analysis of study intersections for the following conditions or scenarios, based on the appropriate assumptions for background land use and roadway infrastructure improvements:
 - “Existing” Conditions
 - “Existing” Plus Project
 - “Interim Baseline” (Without Project)
 - “Interim Baseline” Plus Project

¹³ *Highway Capacity Manual*, Transportation Research Board, National Research Council, Washington, D.C., 2000

¹⁴ *Traffic Access and Impact Studies for Site Development, A Recommended Practice*, Transportation Planners Council, Institute of Transportation Engineers, Washington, D.C., 1991

¹⁵ *Transportation Planning Handbook*, 2nd Ed., John D. Edwards, Jr., Editor, Institute of Transportation Engineers, Washington, D.C., 1999

¹⁶ *Ibid.*

5. The study area should be based upon the type of land use, size of development, street system patterns, terrain, and specific or local site issues. TED will provide input to the traffic consultant regarding the selection of study intersections using local knowledge of the area and the following guidelines:
 - a. All site access drives, adjacent roadways, and intersections around the site, plus the major or signalized intersections in each direction from the site leading up to the nearest regional corridor(s), possibly including transitional locations outside the City of Napa boundaries
 - b. Carry the analysis to locations where site-generated traffic would represent five (5) percent or more of the roadway's peak hour approach capacity
6. Based on the land use of the proposed project and upon consultation with TED, the study shall include the peak hour in one or more of the following periods for capacity-constraint intersection analysis:
 - Midweek evening peak (4:00 – 6:00 PM)
 - Midweek morning peak (7:00 – 9:00 AM)
 - Friday evening peak (5:00 – 7:00 PM)
 - Weekend midday peak (11:00 AM – 1:00 PM)
 - Weekend evening peak (4:00 – 6:00 PM)
7. Data for existing traffic conditions shall be collected for the project using the following guidelines:
 - a. Peak hour turning movement counts shall be collected for all study intersections. Daily traffic volumes for all adjacent roadways may also be required.
 - b. Data shall not be collected on holidays, days immediately prior to or after holidays, during the last two weeks in December, during heavy construction and during large special events. The counts should be collected while school is in session close to the summer tourist peak for typical weekday conditions.
 - c. Traffic counts shall not be used if more than two years old. If available, Caltrans or City of Napa traffic counts may be used, but must be adjusted to reflect current year traffic volumes and patterns.
 - d. All new turning movement counts should utilize the adjustment factors for daily and seasonal variation as shown in *Exhibit C: Count Adjustment Factors* to generate compatible peak traffic volumes included in the City's Traffic Model. The adjustment factors should be used for AM, PM, and weekend peak volumes, as well as average daily traffic (ADT) volumes.
8. All level-of-service (LOS) results reported under 'Existing Conditions' must be supported by field observations during the peak hours analyzed. Specific operational problems must be identified and described in support of the reported

LOS results. Observations must be done during non-holiday or non-special events conditions, with the intent of capturing field conditions that reflect typical conditions.

9. Interim baseline (i.e. Without Project) traffic volumes will be derived from the City's Transportation Management Plan (TMP) Traffic Model, wherever available. Growth factors may be developed from TMP intersections and applied to project's study intersections, as appropriate. The available future year from the TMP Traffic Model is 2005. Arrangements for 2010 future traffic volumes are on the way, and these volumes are expected to be available in late 2003.
10. Certain development sites may include future street connectivity. If so, the study shall include the analysis of traffic flows/patterns with and without the street connectivity as future background conditions. Project trips should then be added to both background conditions.
11. Depending on the specific nature of the proposed project and its location, the study shall include a site traffic review, which may include qualitative and/or quantitative analysis of one or more of the operational concerns identified in Section III.
12. The study shall include a circulation map/figure showing the plan view of the streets in the immediate study area, limitations on sight distances in and around the project site, the location of surrounding driveways, and the location and description of unusual features that may pose particular vehicular, pedestrian, or bicyclist circulation problems.

C. Level-of-Service Criteria from General Plan

Although the General Plan Policy Document ¹⁷ was based on the *1985 Highway Capacity Manual*, the following level of service (LOS) policy statements from the General Plan shall be implemented using the current *Highway Capacity Manual (HCM)* ¹⁸.

1. The City shall ensure that traffic levels of service (LOS) will not exceed midrange LOS 'D' at all signalized intersections on arterial and collector streets with the following exceptions, where midrange LOS 'E' will be permitted (see *Exhibit D: Local Areas Permitted with LOS 'E'*):
 - a. Downtown Napa within the area bounded by Soscol Avenue, First Street, California Boulevard, and Third Street
 - b. Jefferson Street between Third Street and Old Sonoma Road
 - c. Silverado Trail between Soscol Avenue and First Street

¹⁷ City of Napa General Plan, *Envision Napa 2020*, Policy Document, Adopted 12/1/98.

¹⁸ *Highway Capacity Manual*, Transportation Research Board, National Research Council, Washington, D.C., 2000

In addition, until the Caltrans interchange project to improve the intersection of Trancas Street/Redwood Road and SR-29 is completed, LOS 'F' shall be permitted.

2. For traffic signals on State highway facilities, the following criteria shall be used in a collaborative effort between the City of Napa and Caltrans District 4:
 - a. The City of Napa shall use as a reference the threshold level LOS 'E', consistent with the criteria used by the former Napa County Congestion Management Agency (CMA) for freeway mainline sections and freeway ramps. Facilities previously under the jurisdiction of the CMA in the City of Napa are the State Highways (SR-12, SR-29, SR-121, and SR-221).¹⁹ (See *Exhibit E: State Highway Facilities with Permitted LOS 'E'*.)
 - b. Caltrans has indicated that "Caltrans endeavors to maintain a target LOS at the transition between LOS 'C' and LOS 'D' ... on State highway facilities, however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. If an existing State highway facility is operating at less than the appropriate target LOS, the existing MOE (measure of effectiveness) should be maintained."²⁰ Through the use of the Napa TMP Traffic Model, which was co-sponsored by the City of Napa, Caltrans, NCTPA, and NCFWCWD, the State highway intersections operating at less than appropriate target LOS per Caltrans criteria have been identified (see *Exhibit F: State Highway Intersections with LOS "E" & "F"*) as a preliminary reference.
3. The City shall ensure that all new development and redevelopment will meet adopted service levels (LOS) for transportation facilities unless findings are made that achieving other specific public goals found in this General Plan outweigh this requirement.
4. The City shall focus on signalized intersections when evaluating street system LOS.
5. When reviewing projects, the City shall monitor stop controlled intersections using LOS and the *Highway Capacity Manual* as a guideline, applying Caltrans signal warrant evaluation as indicated, and requiring mitigation as necessary.

The above General Plan policy statements are supplemented by the following LOS criteria for unsignalized or stop-controlled intersections.

6. For unsignalized intersections, the minimum acceptable level of service recommended by the Draft Policy Document is midrange LOS 'E'.²¹

¹⁹ City of Napa General Plan Revised Draft EIR, 12/8/97

²⁰ *Caltrans Guide for the Preparation of Traffic Impact Studies*, State of California Department of Transportation, Dec. 2002

²¹ City of Napa General Plan Revised Draft EIR, 12/8/97

7. For unsignalized intersections, a low-volume movement may have delays that yield LOS 'E' or 'F' but may still be considered as having "acceptable operation" by considering both total delay and LOS (defined in terms of average control delay). An intersection traffic movement at a stop-controlled approach can be deemed to have acceptable operation under the following conditions (see *Exhibit G: Operation Analysis, Unsignalized Intersections* for nomograph):²²
 - a. Total delay less than 4.0 vehicle-hours for single lane movement with low volume
 - b. Total delay less than 5.0 vehicle-hours for multilane movement with low volume

D. Guidelines for Determination of Significant Impacts

1. Traffic impact determination for a proposed development project shall begin with the comparison of the intersection level of service (LOS) between traffic operating conditions pre- and post-project, depending on the proposed phasing and implementation timing of development projects:

- a. "Existing" Conditions vs. "Existing" Plus Project

- b. "Interim Baseline" (Without Project) vs. "Interim Baseline" Plus Project

The above comparison(s) is/are anticipated to reveal the direct impacts of project trips on the LOS of the study intersections.

2. In accordance with CEQA requirements, the ultimate determination of the significance of project-related traffic impacts and the appropriate mitigation measure(s) will be made by the Planning Commission and the City Council on a case-by-case basis. The Public Works Department will make technical recommendations to the Planning Commission and City Council. As a starting point in assessing the significance of traffic impacts and the appropriate mitigation measures, the Public Works Department uses the following guidelines:

- a. When a signalized intersection operates at midrange LOS 'D' (as allowed by the General Plan in most locations) or better under existing or interim baseline conditions, the addition of project trips degrades the intersection operations to LOS 'E' or 'F'. The project mitigation should bring the facility to operate at midrange LOS 'D', at a minimum.

- b. When a signalized intersection operates at midrange LOS 'E' (as allowed by the General Plan in some locations and for State Highways facilities) or better under existing or interim baseline conditions, the addition of project trips degrades the

²² NCHRP Report 457, *Evaluating Intersection Improvements: An Engineering Study Guide*, Transportation Research Board, National Research Council, National Academy Press, Washington, D.C., 2001

intersection operations to LOS 'F'. The project mitigation should bring the facility to operate at midrange LOS 'E', at a minimum.

- c. When a signalized intersection operates at LOS 'F' (a violation of the General Plan LOS policy) under existing or interim baseline conditions, the addition of more than 50 peak-hour project trips contributes to the continuing operational failure at the intersection. The project mitigation should bring the facility to pre-project conditions.
- d. At a unsignalized intersection when the minor stop-controlled approach operates at LOS 'E' or better or has acceptable operation in terms of total control delay (see section C-7 above), the addition of project trips increases the total control delay to more than 4.0 vehicle-hours for a single lane approach or 5.0 vehicle-hours for a multilane approach. The project mitigation should bring the facility to operate at LOS 'E' or to bring the total control delay to less than 4.0 vehicle-hours for a single lane approach or 5.0 vehicle-hours for a multilane approach, at a minimum.
- e. At a unsignalized intersection when the minor stop-controlled approach operates at LOS 'F' and does not have acceptable operation in terms of total control delay (see C-7 above), the addition of more than 50 peak-hour project trips contributes to the continuing operational failure at the minor approach. The project mitigation should bring the facility to pre-project conditions.
- f. If the proposed project is on a Crucial Corridor and the property is zoned :TI, the project generates more than 520 trips/gross acre/day (or gross floor area equivalent). Uses with higher trip generation characteristics are prohibited unless:
 - i). Adjustments in the gross floor area, gross acreage, operation, etc., are made to reduce the number of trips to an acceptable level as determined by the Public Works Director, or
 - ii). The Public Works Director finds that the transportation benefits of the project clearly outweigh the adverse effect on the crucial corridor. Transportation benefits of the project may include roadway and safety improvements, traffic system management strategies, transit service enhancements, travel demand management strategies, among others.

E. Mitigation Measures

All significant project impacts shall be mitigated; typically this can be accomplished by meeting the criteria prescribed in the General Plan LOS policies (see C-1 through C-7).

When operational failures occur under existing or interim baseline conditions, the project shall pay its fair share of the improvements necessary to bring the intersection in compliance with the General Plan LOS policies (see C-1 through C-7).

The consultant shall recommend appropriate traffic engineering improvements and/or land use modifications that will mitigate the operational impacts identified in the study, thereby maintaining an acceptable service level on adjacent roadways, intersections, transit, and parking facilities.

The mitigation measures may include the following examples, among others:

1. Roadway Improvements
 - Optimize location of access driveway(s) with respect to sight distance
 - Addition of through traffic lane(s), right turn lane(s), and left turn lane(s)
 - Improvement of sight distances at intersections and driveways to acceptable standards
 - Provide grade separation of facilities (for very large, major developments only)
2. Traffic Control Modifications (Warrants must be met)
 - Provide for yield or stop control
 - Install new traffic signals
 - Upgrade existing traffic signals
 - Modify/optimize phasing of existing traffic signals
 - Provide coordination/synchronization of traffic signals along a corridor
 - Provide channelization through raised islands
 - Restrict certain turn movements
3. Transit Facilities
 - Provide bus turn-outs, park-and-ride lots, bus stops, bicycle and/or pedestrian trails
4. Parking Facilities
 - Design parking facilities to allow free flow access to and from the street
 - Provide adequate off-street parking
 - Implement shared parking among complimentary land uses
5. Bicyclist and Pedestrian Circulation
 - Provide for access to, from, and through development for bicyclists and pedestrians
 - Provide new designated bicycle paths, lanes, and facilities
6. Land Use Controls
 - Reduce cumulative development density
 - Alter proposed land use mix
7. Travel Demand Management (TDM)
 - Flexible employee working hours
 - Institute preferential parking for carpools
 - Encourage employees to use carpools and public transportation

- Prohibit high-traffic public uses during commute peak hours
- Parking cash-out programs mandated by law under certain circumstances

F. Project Fair Share

The project fair share contribution for an impacted intersection that fails operationally under existing or interim baseline conditions shall be determined through the use of traffic volumes during the critical peak hour. **The fair share for the project shall be calculated as the ratio of the project trips over the trips under 'Baseline + Project' conditions. "Baseline" may refer to either "Existing" or "Interim Baseline" scenario, as used in the traffic impact study.** Projects only pay based on what trips they add to post-project conditions.

The fair share for the project shall be calculated using the traffic volumes that enter an intersection during the most critical peak hour period analyzed. The project fair share calculation is demonstrated below:

P = Project Fair Share (in percent)

$T_{(P)}$ = Trips entering the intersection during the critical peak hour generated by the Project (in vehicles per hour)

$T_{(B+P)}$ = Trips entering the intersection during the critical peak hour under 'Baseline + Project' conditions (in vehicles per hour)

$$P = T_{(P)} / T_{(B+P)}$$

G. Study Report Contents

Though the extent and content of traffic study reports will vary with the needs of the projects being studied, certain guidelines are applicable to all such reports. The following sections, at a minimum, shall be included in the traffic study report:

1. Introductory Items
 - Front Cover/Title Page
 - Table of Contents, List of Figures, and List of Tables
 - Executive Summary
2. Project Description
 - Type, scale, and size of development
 - Location map (include major streets, study intersections, and neighboring land uses)
 - Site plan (include proposed driveways, streets, traffic control, parking facilities, emergency vehicle access, and internal circulation for vehicles, bicyclists, and pedestrians)
3. Setting
 - Existing roadway system within project site and surrounding area

- Location and routes of nearest public transit system serving the project
 - Location and routes of nearest pedestrian and bicycle facilities serving the project
4. “Existing” Conditions
 - Map of study area with ADT of major streets
 - Figure of study intersections with lane geometry and traffic control
 - Map of study area with applicable peak hour turning movements
 - Table of existing peak hour Level of Service (LOS)
 5. “Existing” Plus Project Conditions
 - Table of trip generation for project
 - Figure/map and table of trip distribution (in percent)
 - Figure of traffic assignment of project trips only
 - Map of study area with applicable peak hour turning movements
 - Table of applicable peak hour Level of Service (LOS)
 6. “Interim Baseline” (Without Project) Conditions
 - Map of study area with applicable peak hour turning movements
 - Table of applicable peak hour Level of Service (LOS)
 7. “Interim Baseline” Plus Project Conditions
 - Table of trip generation for project
 - Figure/map and table of trip distribution (in percent)
 - Figure of traffic assignment of project trips only
 - Map of study area with applicable peak hour turning movements
 - Table of applicable peak hour Level of Service (LOS)
 8. Impacts and Mitigation Measures
 - Findings for project impacts
 - Mitigation measures for project impacts
 - Figure/sketch of mitigation measures and right-of-way needs
 - Traffic signal warrants and other warrants
 - Financing of mitigation measures/project's fair share
 - Scheduling and implementation responsibility of mitigation measures
 9. Appendices
 - Traffic count data sheets
 - Analysis methods, worksheets, and calculations
 - Computer printouts for LOS calculations

H. General Plan 2020 Cumulative Buildout Scenario

1. To mitigate a development project's cumulative traffic impacts on the City's future circulation system (including regional corridors and State Highway facilities), all development projects shall pay the appropriate Development Impact Fees, which include the Street Improvement Fees. No further traffic analysis of cumulative 2020 buildout scenarios is required of proposed development projects.
2. The City of Napa General Plan ²³ includes a future circulation system, which includes improvements to the existing system. These improvements are designed to support development as allowed in the 2020 land use cumulative buildout scenario.
3. Due to expected development and related traffic, these improvements have been identified as potentially necessary over the next 25 years (i.e. from the General Plan Update) in order to maintain the level of service standards set out in the General Plan. The circulation system consists of a set of roadway classifications that have been developed to guide Napa's long range planning and capital improvement programming.
4. Most of these improvements are not needed immediately. But the City will need to monitor the levels of service in these corridors, reserve right-of-way when feasible, and identify funding sources for improvements to ensure that an acceptable level of service is maintained.
5. To achieve the goal of providing for the extension and improvement of the City's roadway system to ensure the safe and efficient movement of people and goods, the General Plan includes the following policies:
 - a. The City shall require all new development to mitigate traffic impacts in accordance with the Classification of Future Roadway System and reflected in the Future Circulation Improvements specified in the General Plan Policy Document.
 - b. The City shall assess fees on new development sufficient to cover the fair share portion of that development's impacts on the local and regional transportation system (including State Highway facilities).
 - c. The City shall implement the major road improvements identified in the General Plan and any others necessary to allow the circulation system to provide adequate levels of service to accommodate future development.

²³ City of Napa General Plan, *Envision Napa 2020*, Policy Document, Adopted 12/1/98.

- d. The City shall establish plan lines and require that new developments reserve rights-of-way for widening projects and other road improvements identified in the General Plan.
- e. The City shall require that new development construct improvements identified in the Capital Improvement Program (CIP) as needed to serve the development.
- f. The City shall investigate new funding sources and seek additional funds for transportation system improvements and maintenance.
- g. The City shall pursue Federal and State funding to provide for construction of freeways, state highways, and arterial streets wherever Federal and State programs make such funding available.
- h. The City shall supplement gas tax funding by developing alternative funding sources to pay for the maintenance of improvements within public street rights-of-way.



Traffic Advisory Committee

Policy Guidelines: "Transportation Analysis for EIRs"

V. "Transportation Analysis for EIRs"

If the proposed project is anticipated to have a significant effect on the environment and may require an environmental impact report (EIR), the transportation analysis study for such a project shall be conducted according to the guidelines in this section.

A. Overall Review Process

1. The project applicant shall retain a professional traffic engineer, who is licensed to practice in the State of California, to conduct the transportation analysis. The traffic consultant shall conduct the work in the following phased manner:
 - a. Traffic Analysis Scope of Work (detailing project description, site location, study intersections, peak hours for analysis, and traffic data collection)
 - b. Technical Memos of Key Findings (prepared according to the Scope of Work approved by TED)
 - c. EIR Documents (provide relevant sections to EIR consultant; should address TED's comments on the Technical Memos of Key Findings)
 - d. Peer Review by Independent EIR Consultant (coordinated and managed by the Community Development Department)
 - e. Response to Public Agency Comments (e.g. Caltrans, Napa County, NCTPA, neighboring cities, among others)
2. TED shall review the deliverable from each of the above phases of the transportation impact analysis. Approval of the deliverable at each phase of the study is necessary prior to continuing to a later phase.
3. When a proposed development project involves a future Caltrans encroachment permit (for any and all improvement work within Caltrans ROW), developers are advised that the traffic analysis for such a project may need to include additional detailed traffic operational analysis requirements from Caltrans that will be necessary for future encroachment permits.

B. General Methodology

1. The “General Methodology” in Section IV-B of these guidelines shall apply to the transportation analysis for EIRs.
2. The transportation analysis shall utilize the City’s TMP Traffic Model (*Minutp + SynchroPlus*) in order to analyze both local site impacts and citywide circulation impacts.
3. The transportation study shall include the operational analysis of intersections, arterial corridors, and State Highway facilities.

C. Level-of-Service Criteria from General Plan

1. The “Level-of-Service Criteria from General Plan” in Section IV-C of these guidelines shall apply to the transportation analysis for EIRs.
2. For freeway mainline sections and freeway ramps, the following criteria shall be used in a collaborative effort between the City of Napa and Caltrans District 4:
 - a. The City of Napa shall use as a reference the threshold level LOS ‘E’, consistent with the criteria used by the former Napa County Congestion Management Agency (CMA). Facilities previously under the jurisdiction of the CMA in the City of Napa are the State Highways (SR-12, SR-29, SR-121, and SR-221).²⁴ (See *Exhibit E: State Highway Facilities with Permitted LOS ‘E’*.)
 - b. Caltrans has indicated that “Caltrans endeavors to maintain a target LOS at the transition between LOS ‘C’ and LOS ‘D’ ... on State highway facilities, however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. If an existing State highway facility is operating at less than the appropriate target LOS, the existing MOE (measure of effectiveness) should be maintained.”²⁵

D. Guidelines for Determination of Significant Impacts

1. The “Guidelines for Determination of Significant Impacts” in Section IV-D of these guidelines shall apply to the transportation analysis for EIRs.
2. As a starting point in assessing the significance of traffic impacts and the appropriate mitigation measures for freeway mainline, freeway ramp, or arterial corridor, the Public Works Department will use the following guidelines:

²⁴ City of Napa General Plan Revised Draft EIR, 12/8/97

²⁵ *Caltrans Guide for the Preparation of Traffic Impact Studies*, State of California Department of Transportation, Dec. 2002

- a. When a freeway mainline, freeway ramp, or arterial corridor operates at LOS 'E' or better under existing, future, or cumulative baseline conditions, the addition of project trips degrades the segment to LOS 'F'. The project mitigation should bring the facility to operate at LOS 'E', at a minimum.
- b. When a freeway mainline, freeway ramp, or arterial corridor operates at LOS 'F' under existing, future, or cumulative baseline conditions, the addition of more than 50 peak-hour project trips contributes to the continuing operational failure at the segment. The project mitigation should bring the facility to pre-project conditions.

E. Mitigation Measures

The "Mitigation Measures" in Section IV-E of these guidelines shall apply to the transportation analysis for EIRs.

F. Project Fair Share

1. The "Project Fair Share" in Section IV-F of these guidelines shall apply to the transportation analysis for EIRs.
2. Similar to intersections, the project fair share contribution for an impacted roadway facility that fails operationally under existing or interim baseline conditions shall be determined through the use of traffic volumes during the critical peak hour. **The fair share for the project shall be calculated as the ratio of the project trips over the trips under 'Baseline + Project' conditions. "Baseline" may refer to either "Existing" or "Interim Baseline" scenario, as used in the traffic impact study.** Projects only pay based on what trips they add to post-project conditions.

The fair share for the project shall be calculated using the traffic volumes that use a roadway facility during the most critical peak hour period analyzed. The project fair share calculation is demonstrated below:

P = Project Fair Share (in percent)

$T_{(P)}$ = Trips using the roadway facility during the critical peak hour generated by the Project (in vehicles per hour)

$T_{(B+P)}$ = Trips entering the roadway facility during the critical peak hour under 'Baseline + Project' conditions (in vehicles per hour)

$$P = T_{(P)} / T_{(B+P)}$$

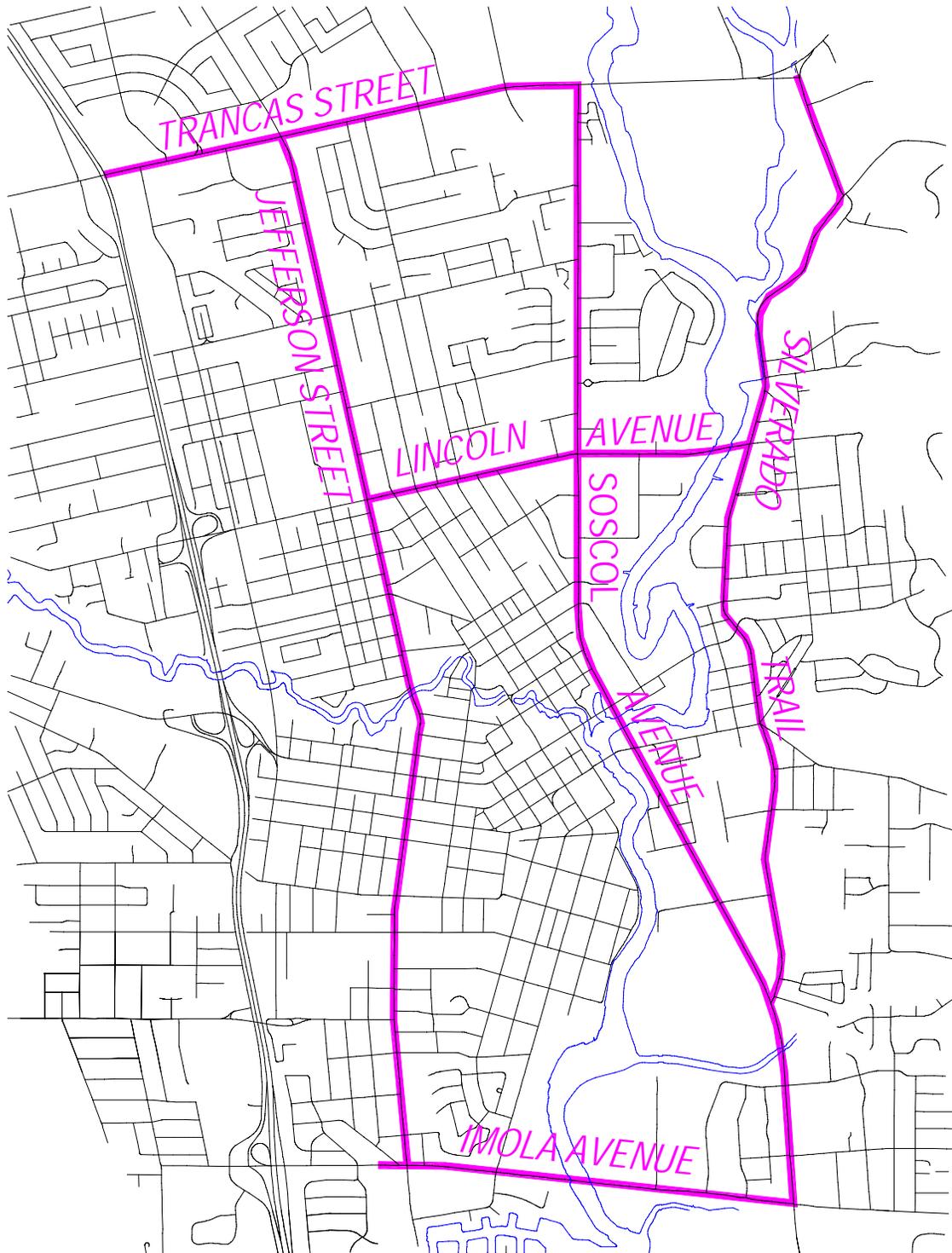
G. Technical Memos Contents

The “Study Report Contents” in Section IV-F of these guidelines shall apply to the technical memos for the transportation analysis for EIRs.

H. General Plan 2020 Cumulative Buildout Scenario

Traffic analysis of cumulative 2020 buildout scenarios (with and without the project) shall be required of development projects that are required to have an EIR. [Certain proposed General Plan Amendments may have the potential to alter the cumulative buildout scenario; hence, their long-range impacts need to be determined.](#)

Exhibit A: Crucial Corridors





Traffic Advisory Committee

Exhibit B: Illustrative Example: Trip Generation Analysis

Store Name	Existing	Proposed	Net Change
	<i>Wine Country Shopping Plaza</i>	<i>Discounts 'R Us</i>	
Store Type	Shopping Center ⁽¹⁾	Free-Standing Discount Store ⁽²⁾	
ITE Land Use Code	"820"	"815"	
Building Size (KSF)	309.71	309.71	0
Lot Size (acres)	7.11	7.11	0
Daily Trip Rate (trip/KSF)	42.92	56.63	13.71
Daily Trips	13,293	17,539	4,246
Daily Trips w/ 30% Passby Reduction	9,305	12,277	2,972 ⁽⁵⁾
Daily Trips/Acre	1,309	1,727	418
Crucial Corridor (Daily Trips/Acre) ⁽³⁾	520	520	
Nonconforming Daily Trips/Acre ⁽⁴⁾	789	1,207	418
AM Peak Trip Rate (trip/KSF)	1.03	0.99	-0.04
AM Peak Trips	319	307	-12
AM Peak Trips w/ 30% Passby Reduction	223	215	-9
PM Peak Trip Rate (trip/KSF)	3.74	4.24	0.5
PM Peak Trips	1,158	1,313	155
PM Peak Trips w/ 30% Passby Reduction	811	919	108 ⁽⁶⁾
Weekend Peak Trip Rate (trip/KSF)	4.97	7.66	2.69
Weekend Peak Trips	1,539	2,372	833
Weekend Trips w/ 30% Passby Reduction	1,077	1,661	583 ⁽⁶⁾

Notes:

⁽¹⁾ An integrated group of commercial establishments that is planned, developed, owned, and managed as a unit; provides on-site parking facilities sufficient to meet its own parking needs

⁽²⁾ Free-standing store with off-street parking offering a variety of customer services, centralized cashiering, and a wide range of products; maintains long store hours, 7 days/week

⁽³⁾ High traffic uses on Crucial Corridor defined as generating > 520 daily trips/acre

⁽⁴⁾ The shopping center is a nonconforming high traffic use on a Crucial Corridor.

⁽⁵⁾ The discount store increases daily trips and is prohibited to continue as nonconforming high traffic use in the Crucial Corridor.

⁽⁶⁾ The addition of 50 peak hour trips or more requires a Traffic Impact Study.

Reference: Trip Generation, 6th Ed., Institute of Transportation Engineers, 1997



Traffic Advisory Committee

Exhibit C: Count Adjustment Factors

Monthly and Daily Factors for Converting Counts To Average August Thursday Traffic

Day of Week Multiplier

Monday	1.043
Tuesday	1.020
Wednesday	1.010
Thursday	1.000
Friday	0.940

Month of Year Multiplier

January	1.179
February	1.161
March	1.133
April	1.083
May	1.064
June	1.009
July	1.015
August	1.000
September	1.037
October	1.078
November	1.067
December	1.158

Source: Napa Transportation Management Plan (TMP) Traffic Model



Traffic Advisory Committee

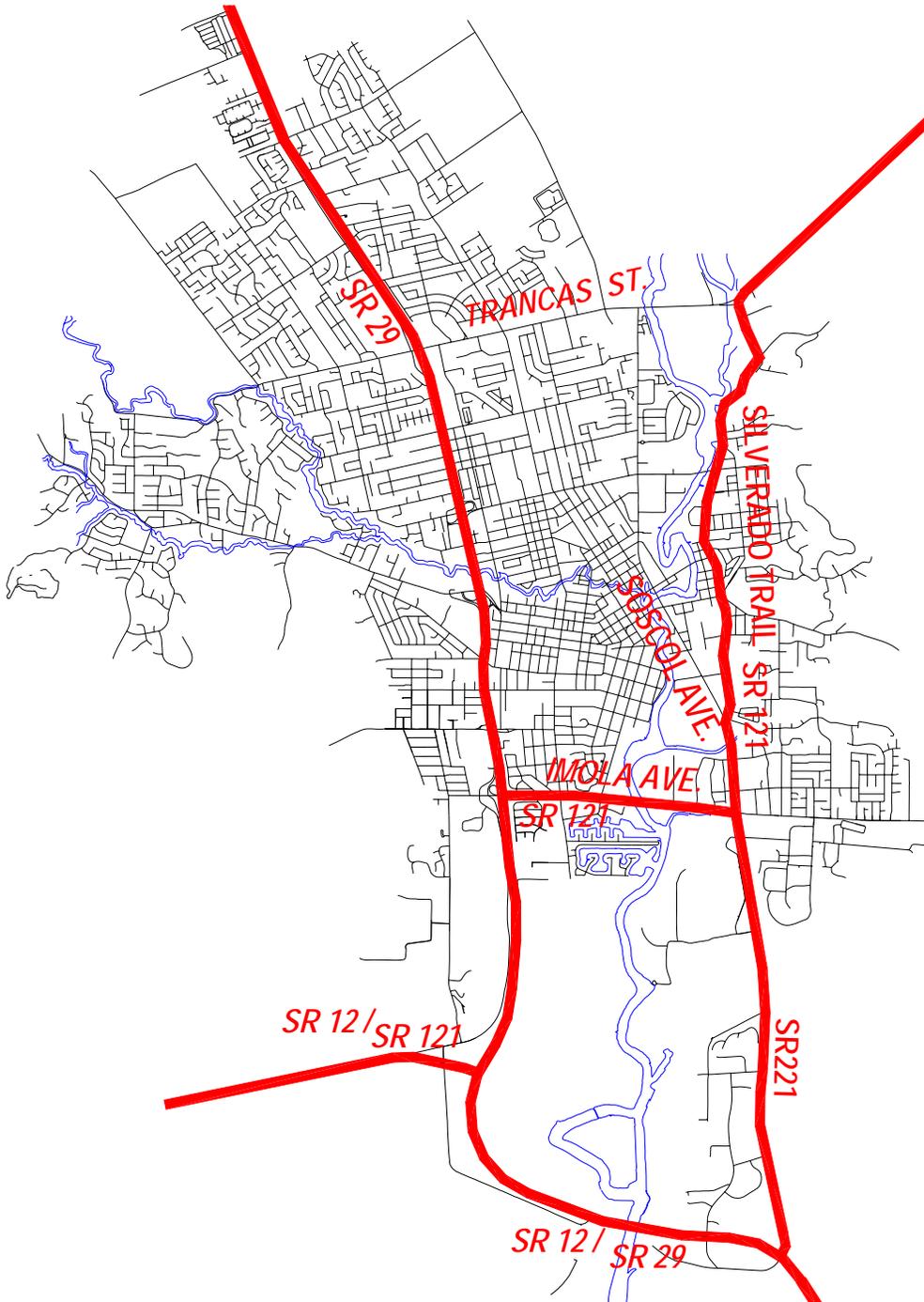
Exhibit D: Local Areas with Permitted LOS 'E'





Traffic Advisory Committee

Exhibit E: State Highway Facilities with Permitted LOS 'E'





Traffic Advisory Committee

Exhibit F: State Highway Intersections with LOS 'E' & 'F'

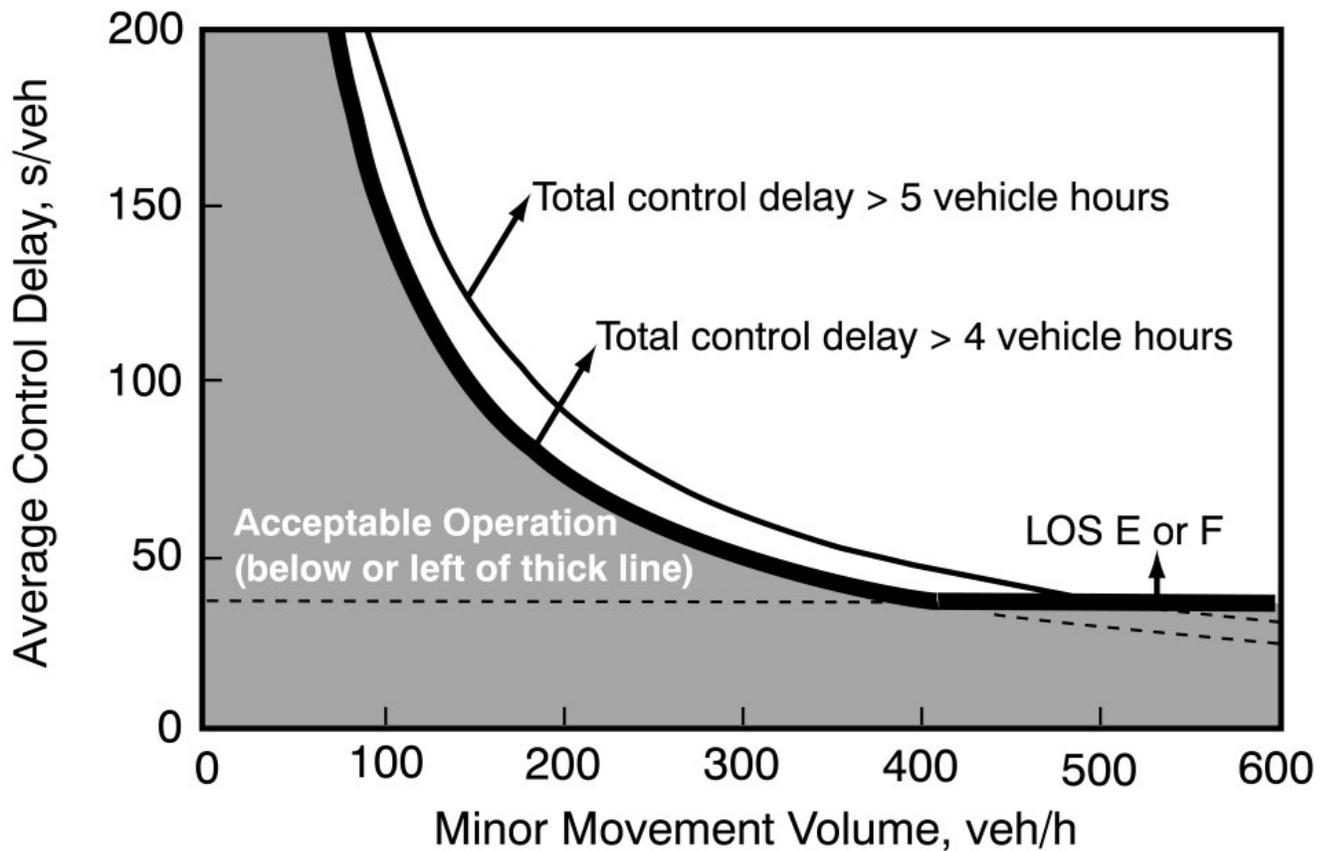
TMP Int #	Locations/ Intersections	Yr 2000				Yr 2005			
		Intersection Control	Unsig Int'n - Crit Mvmt	LOS - HCM2000	HCM2000 Control Delay	Intersection Control	Unsig Int'n - Crit Mvmt	LOS - HCM2000	HCM2000 Control Delay
3	Hwy 29/ Redwood Rd-Trancas St	Signalized		F	143.0	Full Interchange		N/A	N/A
8	Hwy 121 (Silverado Trail-Monticello Rd)/ Trancas St	STOP ALL approaches (except NBR)	NBL	E	39.7	STOP ALL approaches (except NBR)	NBL, EB	E	48.7
9	Hwy 29 SB Ramps on Solano Ave	STOP ALL approaches	SB	D	33.9	STOP ALL approaches	SB	E	37.8
10	Hwy 29 NB Ramps on Lincoln Ave	YIELD offramps	SBR	E	35.8	YIELD offramps	SBR	F	51.8
20	Hwy 29 NB Ramps on First St	Stop (NBL) & Yield (NBR)	NB	F	376.0	Stop (NBL) & Yield (NBR)	NB	F	386.8
30	Hwy 121 (Silverado Trail)/ Third St-East Ave-Coombsville Rd	Signalized		F	108.7	Signalized		F	124.2
33	Hwy 29 SB Ramps on Imola Ave	Stop ALL approaches	WB	F	58.4	Stop ALL approaches		F	109.7
34	Hwy 29 NB Ramps on Imola Ave	Stop on NB Approach	NB	F	73.8	Stop on NB Approach	NB	F	327.3
35	Hwy 121-Imola Ave/ Jefferson St	Signalized		E	56.8	Signalized		E	67.5
36	Hwy 121-Imola Ave/ Coombs St	Signalized		E	58.0	Signalized		E	64.6
37	Hwy 121-Imola Ave/ Soscol Ave	Signalized		F	111.4	Signalized		F	112.0
38	Hwy 12-121/ Old Sonoma Rd	STOP on Old Sonoma Rd	SB	F	140.2	STOP on Old Sonoma Rd	SB	F	327.5
40	Hwy 12-121/ Golden Gate Dr/ Stanly Ln	STOP on Golden Gate-Stanly	NB/ SB	F	Very high	Signalized		F	94.7
41	Hwy 12-121/ Hwy 29	Signalized		E	75.6	Signalized		F	97.3
42	Hwy 12-29/ Napa Vallejo Hwy	Signalized		F	257.6	Signalized		F	491.1
43	Hwy 29/ Hwy 12-Aiport Blvd	Signalized		F	129.3	Signalized		F	105.6
44	Hwy 12-Airport Blvd/ Kelly Rd	Signalized		C	30.3	Signalized		F	87.6
59	Hwy 29/ Trower Ave	Signalized		F	155.1	Signalized		E	79.7

Reference: Napa TMP Traffic Model



Exhibit G: Operational Analysis Unsignalized Intersections

Control Delay on Stop-Controlled Minor Approach



Notes:

- 1). Use Total Control Delay > 5 vehicle hours for multi-lane approach.
- 2). Use Total Control Delay > 4 vehicle hours for single-lane approach.

Source: *NCHRP Report 457, Evaluating Intersection Improvements: An Engineering Study Guide*, Transportation Research Board, National Research Council, National Academy Press, Washington, D.C., 2001



Traffic Advisory Committee

Exhibit H: Transportation Consultants

The following transportation engineering and planning consultants have expressed their interest in pursuing traffic impact studies in the City of Napa and their commitment to conduct such studies in compliance with the City's *Policy Guidelines: Traffic Impact Analysis for Private Development Review*. Although these firms have achieved their own professional reputation in the industry, the City of Napa does not guarantee the quality of work produced by these consultants. **Developers are advised to check references on their own prior to the selection of a transportation consultant.** The consultants are listed in alphabetical order. **We have also indicated the three consultants selected for the TED On-Call Services agreement for FY 03-05 and FY 05-07.**

<p>Crane Transportation Group Mark D. Crane, P.E., Principal 545 Burnett Avenue, Suite 101 San Francisco, CA 94131 415-282-9656, Fax: 415-821-9837 cranetran@aol.com</p>	<p>Korve Engineering (TED On-Call Consultant) Bill Burton, PE, Project Manager 155 Grand Avenue, Suite 400 Oakland, CA 94612 510-763-2929, Fax: 510-834-5220 bburton@korve.com</p>
<p>DKS Associates (TED On-Call Consultant) Deborah A. Dagang, PE, Principal 1956 Webster Street, Suite 300 Oakland, CA 94612 510-763-2061, Fax: 510-268-1739 dad@dksassociates.com</p>	<p>TJKM Transportation Consultants Arul Edwin, Branch Manager 141 Stony Circle, Suite 280 Santa Rosa, CA 95401-4110 707-575-5800, Fax: 707-575-5888 aedwin@tjkm.com</p>
<p>Dowling Associates Steven B. Colman, AICP, Principal 180 Grand Avenue, Suite 250 Oakland, CA 94612 510-839-1742, Fax: 510-839-0871 scolman@dowlinginc.com</p>	<p>T.Y. Lin International/CCS Mousa F. Abbasi, PhD, PE, PTOE, Asso. Vice President 100 B Street, Suite 330 Santa Rosa, California 95401 707-578-4860 Fax: 707-578-4871 Mobile: 707-479-8228 mabbasi@tylin.com</p>
<p>Fehr & Peers Associates, Inc. (TED On-Call Consultant) Matthew Ridgway, Senior Associate 604 Mission Street, 4th Floor San Francisco, CA 94105 415-369-0425, Fax: 415-369-0426 m.ridgway@fehrandpeers.com</p>	<p>Wilbur Smith Associates (WSA) Bill Hurrell, PE, Vice President 201 Mission Street, Ste. 1450 San Francisco, CA 94105 415-495-6201, Fax: 415-495-5305 whurrell@wilbursmith.com</p>
<p>KDAnderson Transportation Engineers Jonathan Flecker, PE, Traffic Engineer 3853 Taylor Road, Suite G Loomis, CA 95650 916-660-1555, Fax: 916-660-1535 trafprof@yahoo.com</p>	<p>Wilson Engineering John Wilson, President 70 Zoe Street, Suite 200 San Francisco, CA 94107 415-974-5071, Fax: 415-974-5073 wesfca@aol.com</p>
<p>Kimley-Horn and Associates Kevin G. Aguigui, P.E. 555 12th Street, Suite 1230 Oakland, CA 94607 510.625.0712, Fax 510.625.0714, Mobile 510.393.6232 kevin.aguigui@kimley-horn.com</p>	<p>W-Trans (Whitlock & Weinberger Transportation Inc.) Dalene J. Whitlock, PE, PTOE, Principal 509 Seventh Street, Suite 101 Santa Rosa, CA 95401 707-542-9500, Fax: 707-542-9590 dwhitlock@w-trans.com</p>